

**ABSTRACT**  
**QUANTUM WELL INTERMIXING**

5        In a method of manufacturing a photonic integrated  
circuit having a compound semiconductor structure having a  
quantum well region, the structure is irradiated using a  
source of photons to generate defects, the photons having  
energy (E) at least that of the displacement energy ( $E_D$ ) of  
at least one element of the compound semiconductor. The  
10       structure is subsequently annealed to promote quantum well  
intermixing. The preferred radiation source is a plasma  
generated using an electron cyclotron resonance (ECR)  
system. The structure can be masked in a differential  
manner to selectively intermix the structure in a spatially  
15       controlled manner by controlling the exposure portions of  
the structure to the source of radiation.

(Figure 4)